

Supporting Information Available. Table (1) Refined lattice parameters for the obtained phases and corresponding literature values, Figures (1) Field cooled and Zero Field cooled magnetic behavior of a pristine and a cleaned FeSb₂ sample (MPMS, Quantum Design), (2) Hysteresis loops at 5K and 300K of a pristine and a cleaned FeSb₂ sample

Table SI-1. Refined lattice parameters for the obtained phases and literature values. The corresponding references are given in the text.

Reaction condition	Phase	Reported lattice parameters (bulk)	Refined lattice parameters (nano) ± error	Calculated average crystallite size ± error	r_wp
(a) 200°C	Sb	a= 4.307 c= 11.273	a= 4.29638 ± 0.00083 c= 11.34996 ±0.00369	11.96 ± 0.17	4.43
(b) 250°C	FeSb ₂	a= 5.82 b= 6.519 c= 3.188	a= 5.83259 ±0.00082 b= 6.53605 ±0.00089 c= 3.20587 ±0.00040	29.48 ± 0.58	3.694
	Sb	a= 4.307 c= 11.273	a= 4.30145 ±0.00096 c= 11.31955 ±0.00499	17.39 ±0.68	
(c) 300°C	FeSb ₂	a= 5.82 b= 6.519 c= 3.188	a= 5.83330 ±0.00054 b= 6.53889 ±0.00062 c= 3.20418 ±0.00028	39.23 ± 0.72	3.495
(d) 300°C, 60min	FeSb ₂	a= 5.82 b= 6.519 c= 3.188	a= 5.83252 ±0.00060 b= 6.53958 ±0.00065 c= 3.20297 ±0.00030	39.93 ±0.82	3.098

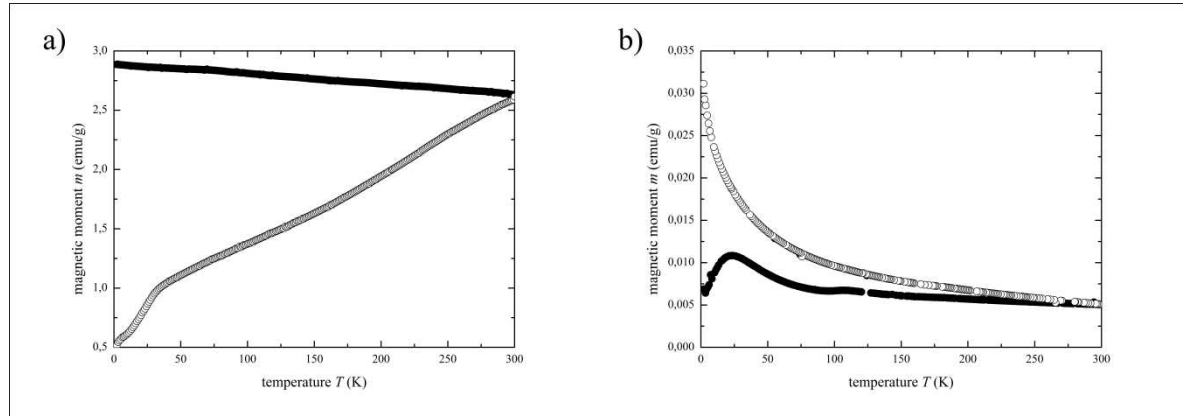


Figure SI-1 Field Cooled (open circles) and zero Field Cooled (full circles) of **a)** pristine and **b)** cleaned sample of FeSb_2 .

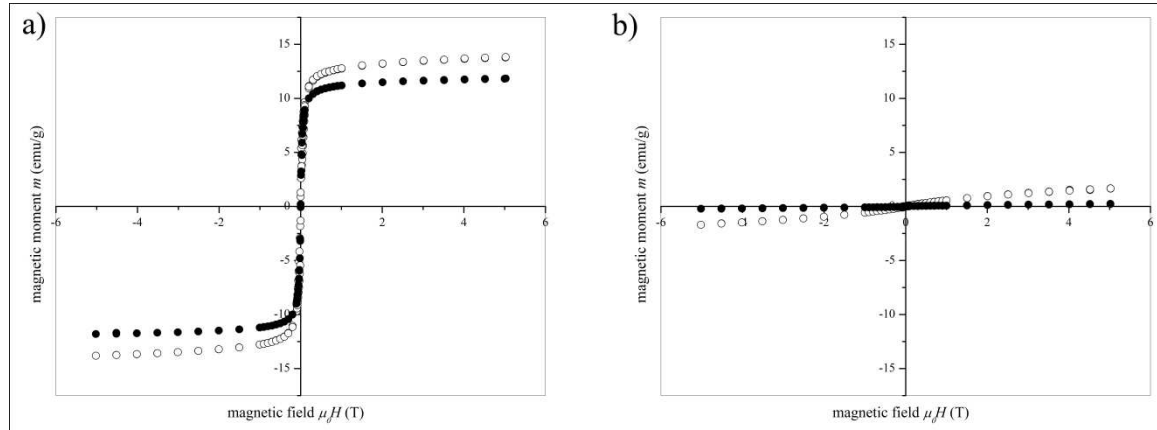


Figure SI-2 Hysteresis loops at 5K (open circles) and 300K (full circles) of **a)** pristine and **b)** cleaned sample of FeSb_2